

***Remarks***

Reconsideration of this Application is respectfully requested in light of the foregoing amendments and the following remarks. Claims 1-11 and 13-36 are pending in the application, with claims 1, 35 and 36 being the independent claims.

Claims 31-34 stand rejected under 35 U.S.C. 112, first paragraph because the specification allegedly does not enable any person skilled in the art to make and/or use the invention commensurate in scope with these claims. Claims 1, 2, 11, 29, and 36 stand rejected under 35 U.S.C. §102(e) as being clearly anticipated by U.S. Patent No. 6,464,945 to Hemingway *et al.* (hereinafter "Hemingway"). Claims 18, 19, and 26-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway. Claims 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of U.S. Patent No. 5,746,051 to Kieser *et al.* (hereinafter "Kieser"). Claims 4-10 and 13-25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of U.S. Patent No. 6,007,785 to Liou (hereinafter "Liou") and U.S. Patent No. 6,024,930 to Racca *et al.* (hereinafter "Racca"). Claim 30 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of U.S. Patent No. 3,967,131 to Slipiec *et al.* (hereinafter "Slipiec"). Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of U.S. Patent No. 4,954,320 to Birmingham *et al.* (hereinafter "Birmingham").

Claims 37-57 have been withdrawn as a result of restriction. In response, the Applicant has cancelled claims 37-57 without prejudice or disclaimer of the subject matter therein. The Applicant wishes to thank the Examiner for the indication that claim 35 is allowable.

I. Claims 31-34 Are Enabled By The Specification

The Office Action indicates that the rejections of the previous Office Action (dated April 22, 2004) are maintained. While not addressed in the outstanding Office Action, the Examiner previously rejected claims 31-34 35 U.S.C. 112, first paragraph. In response, the Applicant amended to the claims to provide enablement. Since no acknowledgement of the withdrawal of this rejection was indicated, and because the Examiner stated that the rejections of the previous Office Action are maintained, the Applicant assumes that the rejection under 112, first paragraph has been maintained. For the following reasons, the Applicant respectfully traverses this rejection.

Claims 31-34 recite, *inter alia*, a “dielectric barrier discharge plasma cell of claim 1 wherein said dielectric is cylindrical.” The rejection under 112, first paragraph stated that “the specification, while being enabling for the cylindrical dielectric, does not provide enablement for the cylindrical dielectric when the cell is rectangular in cross-section.” Claim 1, the independent claim upon which claims 31-34 depend, was amended so that it does not recite that the cell is rectangular in cross-section. Accordingly, claims 31-34 are no longer in contradiction of a recitation in claim 1 and are therefore enabled by the specification.

II. Claims 1, 2, 11, 29 and 36 Are Patentable Over Hemingway

Claims 1, 2, 11, 29 and 36 stand rejected under 35 U.S.C. § 1-2(e) as being clearly anticipated by Hemingway. For the following reasons, the Applicant respectfully traverses this rejection.

Claims 1, 2, 11, 29, and 36 recite, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current

and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

Hemingway, on the other hand, fails to disclose or suggest the invention as recited by claims 1, 2, 11, 29, and 36. Rather, Hemingway discloses a non-thermal plasma reactor, which initiates NO<sub>x</sub> reduction reactions (see Abstract). The non-thermal plasma reactor includes two high dielectric plates, each plate having an electrode formed thereon (see col. 3, lines 44-55). Hemingway further discloses that the spacers separate the electrodes (see col. 3, lines 44-50). While Hemingway may disclose a protective covering 34, the covering is located between the two electrodes and not located on the side of the dielectric substrate farther away from the conductor as recited in the claims. Rather, the protective covering is located *between* the two electrodes. As such, Hemingway fails to disclose or suggest a protective layer covering a conductive coating, where the protective layer is located on the side of the dielectric substrate farther away from said conductor. Thus, the invention as recited by claims 1, 2, 11, 29, and 36 is distinguished over the prior art.

Accordingly, it is respectfully requested that the rejection be withdrawn.

### III. Claims 18, 19 and 26-28 are Allowable Over Hemingway

Claims 18, 19, and 26-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway. For the following reasons, the Applicant respectfully traverses this rejection.

Claims 18, 19, and 26-28 recite, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

As discussed above, Hemingway fails to disclose or suggest a protective layer covering a conductive coating, where the protective layer is located on the side of the dielectric substrate farther away from said conductor. Accordingly, Hemingway fails to disclose or suggest the invention as recited by claims 18, 19, and 26-28.

IV. Claims 4-10 are Allowable Over Hemingway in view of Kieser

Claims 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of Kieser. For the following reasons, the Applicant respectfully traverses this rejection.

Claims 4-10 recite, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

As discussed above, Hemingway fails to disclose or suggest the claimed invention of claims 4-10. Kieser fails to correct this deficiency. Kieser, on the other hand, suggests a plasma reactor for detoxifying exhaust fumes (see, Kieser Abstract). The plasma reactor comprises of electrodes with dielectric material sandwiched between the electrodes (see, Kieser, col. 2, lines 13-18). In another embodiment, the plasma reactor comprises of ceramic plates, where each ceramic plate is coated with a metal layer serving as an electrode (see, Kieser, col. 3, lines 29-33). However, Kieser fails to disclose the use of a protective layer covering either metal layer, which is formed on the ceramic plate. As such, Kieser fails to disclose or suggest the invention as recited by claims 4-10.

Since Hemingway and Kieser each fail to disclose or suggest the claimed invention, the combination of Hemingway and Kieser also fails to disclose or suggest the invention as recited by claims 4-10. Accordingly, the claims 4-10 are distinguishable over the prior art and, therefore, it is respectfully requested that the rejection be withdrawn.

V. Claims 4-10 and 13-25 are Allowable Over Hemingway in view of Liou and Racca

Claims 4-10 and 13-25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of Liou and Racca. For the following reasons, the Applicant respectfully traverses this rejection.

Claims 4-10 and 13-25 recite, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

As discussed above, Hemingway fails to disclose or suggest the claimed invention of claims 4-10 and 13-25. Liou fails to correct this deficiency. Instead, Liou discloses an ozone generating system (see Liou, Abstract). The ozone generating system comprises of electrodes with a dielectric material sandwiched between the electrodes (see, Liou, col. 3, lines 33-40). However, Liou fails to disclose or suggest dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor as recited by claims 4-10 and 13-25. Rather, the dielectric is not modified. As such, Liou fails to disclose or suggest the invention as claimed.

Racca also fails to disclose or suggest a dielectric spaced apart from a conductor, as recited by claims 4-10 and 13-25. Racca, on the other hand, suggests an ozone generator comprising of a dielectric material with electrodes formed thereon (see, Racca, col. 2, lines 30-43). As such, Racca does not suggest spacing between the conductor and the dielectric as recited by claims 4-10 and 13-25. Thus, Racca does not disclose or suggest the claimed invention.

Since Hemingway, Liou and Racca each fail to disclose or suggest the claimed invention, the combination of Hemingway, Liou and Racca also fails to disclose or suggest the invention as recited by claims 4-10 and 13-25. Accordingly, the claims 4-10 and 13-25 are distinguishable over the prior art and, therefore, it is respectfully requested that the rejection be withdrawn.

VI. Claim 30 is Allowable Over Hemingway in view of Slipiec

Claim 30 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of Slipiec. For the following reasons, the Applicant respectfully traverses this rejection.

Claim 30 recites, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

As discussed above, Hemingway fails to disclose or suggest the claimed invention of claim 30. Slipiec does not correct his deficiency. Slipiec suggests an ozone-generating unit that includes three dielectric tubes and electrode assemblies (see Slipiec col. 4, lines 18-20). However, Slipiec does not disclose or suggest a protective layer covering a conductive coating on the dielectric substrate. As such, Slipiec fails to disclose or suggest the invention as recited by claim 30.

Since Hemingway and Slipiec each fail to disclose or suggest the claimed invention, the combination of Hemingway and Slipiec also fails to disclose or suggest the invention as recited by claim 30. Accordingly, the claim 30 is distinguishable over the prior art and, therefore, it is respectfully requested that the rejection be withdrawn.

VII. Claim 3 is Allowable Over Hemingway in view of Birmingham

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hemingway in view of Birmingham. For the following reasons, the Applicant respectfully traverses this rejection.

Claim 3 recites, *inter alia*, a dielectric barrier discharge plasma cell that includes a dielectric substrate with a conductive coating adapted to receive alternating current and a protective layer covering the conductive coating and located on the side of the dielectric substrate farther away from said conductor.

As discussed above, Hemingway fails to disclose or suggest the claimed invention of claim 3. Birmingham fails to correct this deficiency. As the Office Action points out, Birmingham suggests a device for treating gas with a transformer. However, Birmingham fails to disclose or suggest using a protective layer covering a conductive coating, where the conductive coating covers a dielectric substrate. Accordingly, Birmingham does not disclose or suggest the invention as recited by claim 3.

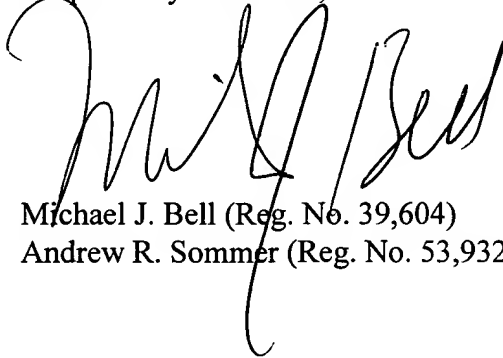
Since Hemingway and Birmingham each fail to disclose or suggest the claimed invention, the combination of Hemingway and Birmingham also fails to disclose or suggest the invention as recited by claim 3. Accordingly, claim 3 is distinguishable over the prior art and, therefore, it is respectfully requested that the rejection be withdrawn.

### ***Conclusion***

Applicant respectfully submits that the foregoing remarks demonstrate that entry of these amendments places the present application in condition for allowance, or in the alternative, better form for appeal. All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to be "M.J. Bell" and "A.R. Sommer" joined together.

Michael J. Bell (Reg. No. 39,604)  
Andrew R. Sommer (Reg. No. 53,932)

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HOWREY SIMON ARNOLD & WHITE, LLP  
2941 Fairview Park Drive, Box 7  
Falls Church, VA 22042  
(202) 783-0800